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ABSTRACT

Computer-based career information systems (CCIS) provide local labor market information. Guidance counselors frequently use CCIS in conjunction with clients, but youth and adults also access CCIS independently to obtain career information. The best known CCIS are the state-based career information delivery systems (CIDS). Although developed by a number of different vendors and customized for particular audiences, CIDS share these core features: assessment, occupational search, occupational information, and educational information. A significant characteristic of CCIS is their versatility. For example, in Notus, Idaho, fourth-grade students are introduced to the Idaho Career Information System by a guidance counselor who uses it as a building block for future career education activities. Oregon has adapted its career information system to deliver tech prep information through a specially developed software program. Employees at Niagara Mohawk Power Corporation in upstate New York use a computerized career information system for their personal career management. Some indications of future applications can be seen in current trends. Developers are moving toward multimedia versions of CCIS products using CD-ROM technology. One product on the market offers linkages to the Internet. Issues affiliated with the future of CCIS are the need for information management skills and access and equity. (Contains 10 references.) (YLB)

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ERIC CELEBRATING 30 YEARS - 1966-1996
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Computer-Based Career Information Systems

The adage "information is power" can certainly be applied to the marriage of career information with computers. In an era that is characterized by a rapidly changing employment and occupational outlook, the ability to access computerized career information has been empowering to both youth and adults (Bloch 1989; Tice and Gill 1991). Defined as "all that people need to know to make choices and take action . . . in relation to their paid or unpaid occupational activities and in relation to their preparation for these activities" (Bloch 1989, p. 120), career information includes knowledge about occupational areas and specific jobs; information about career preparation and where to obtain suitable education and training; facts about employment, including work environments and appropriate job behavior; job-search skills; and self-knowledge such as individual interests, values, and needs. Computers are an ideal medium for delivering career information because they can present current information objectively in an interactive format that is appealing to many clients (Harris-Bowlsbey 1992).

Two classes of computerized systems that provide information for career planning are computer-based career guidance systems (CCGS) and computer-based career information systems (CCIS) (Harris-Bowlsbey 1992; Mariani 1995-96). Although CCIS and CCGS share some common features, they differ in two important ways: CCIS provide local labor market information, whereas CCGS teach career development concepts online (Harris-Bowlsbey 1992). Guidance counselors frequently use CCIS in conjunction with clients, but youth and adults frequently access CCIS independently to obtain career information. This *Digest* focuses on CCIS. Following an overview of computer-based career information systems, it describes some current applications. Predictions about the future of CCIS are presented in conclusion.

Career Information Systems: An Overview

The best known computer-based career information systems are the state-based career information delivery systems (CIDS). Serving over 9 million customers yearly at more than 20,000 sites, CIDS operate in 48 states and provide information about occupations and educational programs within that state (Mariani 1995-96; National Occupational Information Coordinating Committee 1996). Although CIDS have been developed by a number of different vendors and customized for particular audiences, they share the following core features (ibid.):

- **Assessment.** Most CIDS now have one or more online tools that help users assess their values, interests, skills, aptitudes, or experiences as well as the characteristics they expect from a job. These assessments help users learn about themselves and the qualities they might prefer in a career. A relatively new feature of CIDS, skills assessments have proven especially helpful to experienced workers who need to find a new career.
- **Occupational Search.** The occupational search feature allows users to match personal characteristics with compatible job and career possibilities. Some occupational searches are based on the results of the assessments, but, in others, the user selects and rates search variables that are then used to generate a list of occupations. Users may also simply access an index of occupations and retrieve descriptions of those that are of interest. Regardless of the approach, the result is a list of occupations that match the user's personal interests.
- **Occupational Information.** This CIDS feature allows users to retrieve information about the occupations identified through their occupational search. Most systems contain descriptions of 300-500 occupations, including information on the nature of the work, working conditions, numbers employed, education and training requirements, earnings, related occupations, and common career ladders. Many systems allow for side-by-side comparison of two occupations, and, increasingly, include local, state, and national occupational data.
- **Educational Information.** This feature of CIDS provides users specific information about educational programs and institutions that will prepare them for a career. Information on vocational and technical schools, 2- and 4-year colleges, and graduate schools is included. Criteria such as geographical location, tuition limit, and course of study are selected by clients to establish search variables for locating suitable educational information. For each institution, CIDS usually contain information on admissions requirements, types of degrees offered, tuition and fees, financial aid, community setting, and so forth.

In addition to the four elements described here, systems also contain such features as online orientation to the system, instruction in the career decision-making process, information on scholarships and financial aid, tools for resume writing, and online user questionnaires (Mariani 1995-96). In short, just like the computer technology on which they are based, CIDS are constantly changing and evolving.

CCIS In Use

A significant characteristic of computer-based career information systems is their versatility. Located in many different settings, they are regularly used by youth and adults working independently or in groups and with or without professional support. The three examples that follow demonstrate some of the many ways in which career information systems are used.

In Notus, Idaho, fourth-grade students are introduced to the Idaho Career Information System by a guidance counselor, who uses it as a building block for future career education activities. During the fourth and fifth grades, the counselor talks to students about future course selection, relating these courses to the work they may want to do, and also uses occupational printouts from the system to encourage career exploration. Because the school has only the high school version of the program, the students do not usually work on the computer directly, but use a worksheet to select occupations that interest them. This "exposure to the information primes the students to use the system themselves in the career

exploration courses they take in the seventh and eighth grades" (Mariani 1995-96, pp. 19-20).

Oregon has adapted its career information system to deliver tech prep information by developing a new software program titled Career Path Planner. The project was designed to create a computerized guidance tool that would help students explore and make decisions about Oregon's new career strands (Certificates of Advanced Mastery or CAMs) and the tech prep programs available in their high schools. In Oregon, tech prep is a regional program and how it is conceptualized varies according to region. Since the Oregon CIDS could not accommodate regional variances, the Career Path Planner software was developed. In addition to allowing for flexibility for regional descriptions, it has helped to convey the changes in education to students, parents, and educators by connecting familiar concepts—occupations and programs of study—to concepts that are new—tech prep and CAMs (Buhl 1995).

Employees at Niagara Mohawk Power Corporation in upstate New York use a computerized career information system for their personal career management. The system, which is accessed through personal computers, has proven to be an effective tool for permitting employees to access career and educational information. In addition to information about local college and university programs and distance education opportunities, the system includes descriptions of nearly 750 of the corporation's management jobs as well as union positions. Formal training requirements for all of these positions are part of the descriptions. Employees can request copies of the most recent posting of any job and review the qualifications (Phelan 1994).

As shown by these examples, the potential uses of CCIS are vast, but, unfortunately, little is known about their effectiveness (Mariani 1995-96). Two early studies of CCIS use report favorable client outcomes. At-risk youth who accessed computerized career information, for example, were "amazed at the opportunities" presented and felt that using the system gave them hope (Bloch 1989). Among the benefits mentioned by adults who used CCIS in public libraries were the following: expanded awareness of career options, types of jobs, and related education and training opportunities; increased self-confidence in themselves and their ability to make career decisions; and improved job-seeking skills (Tice and Gill 1991). To understand more fully the potential of CCIS, however, "research into the effective use of systems with different populations under differing conditions" is needed (Mariani 1995-96, p. 25).

The Sky's the Limit

What does the future hold for CCIS? Some indications of future applications can be seen in current trends. Developers are already moving toward multimedia versions of CCIS products using CD-ROM technology. In addition, at least one product already on the market offers users the options of requesting more information from colleges electronically and of applying to colleges online (Mariani 1995-96). This linkage to the Internet can only be viewed as a harbinger of future developments in computer-based career planning systems. If current systems connect to educational institutions, why not also to employer information databases, a number of which already have homepages on the World Wide Web (Allen 1995) or to the many other career-related websites (i.e., salary guides that estimate salary ranges for various jobs: <http://www.espan.com/salary/salary.html>) ("Web Sites Link Job-Hunters with Career Possibilities" 1996).

The client base for CCIS will continue to change. Mariani (1995-96) speculates that, in the future, adults in settings other than schools and colleges will account for large increases in state CID system use. Part of the increase will result from the implementation of one-stop career centers that will provide a full array of career services to adults. In the 16 states funded thus far, "technology is the centerpiece of the one-stop plans" (Dykman 1995, p. 37), and CIDS are an integral part of the plans (Mariani 1995-96).

At least two issues are affiliated with the future of CCIS. As CCIS become part of the information highway, users will have to exercise information management skills to understand how to access and select the most appropriate information. Also, despite their growth into the public sector through one-stop career centers, access and equity issues may materialize: will those most in need of services have access and will the type of information they need be available?

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